

APPENDIX C

Prohibited Species Catch in the BSAI for 2001

by David Witherell

This chapter presents information on the bycatch of Prohibited Species in the groundfish fisheries conducted in the Bering Sea / Aleutian Islands management area (BSAI). This chapter is intended to assist the Council in their recommendation of Prohibited Species Catch (PSC) limits and seasonal apportionments of crab and halibut, and provide bycatch information on other prohibited species. Regulations have been implemented to reduce bycatch of red king crab, Tanner crab, snow crab, halibut, herring, and salmon taken in groundfish fisheries. The following is a summary of these management measures:

Red King Crab: A stairstep based PSC limit for red king crab in Zone 1 was established as part of Amendment 37. PSC limits are based on abundance of Bristol Bay red king crab as follows:

- (A) When the number of mature female red king is equal to or below the threshold number of 8.4 million crab, or the effective spawning biomass (ESB) is less than 14.5 million pounds, the Zone 1 red king crab PSC limit would be 35,000 crabs;
- (B) when the number of mature female red king crab is above threshold, and the ESB is equal to or greater than 14.5 but less than 55 million pounds, the Zone 1 red king crab PSC limit would be 100,000 crabs; and
- (C) when the number of mature female red king crab is above threshold, and the ESB is equal to or greater than 55 million pounds, the Zone 1 red king crab PSC limit would be 200,000 crabs.

Note that Amendment 57 contained a provision to reduce red king crab bycatch by an additional 3,000 crabs as part of the regulation prohibiting the use of bottom trawl gear for pollock fisheries. Based on the 2000 estimate of ESB (39.9 million pounds), and the 3,000 crab reduction for Amendment 57, the PSC limit for 2001 will be 97,000 red king crabs. The red king crab cap has generally been allocated among the pollock/mackerel/other species, Pacific cod, rock sole, and yellowfin sole fisheries. Once a fishery exceeds its red king crab PSC limit, Zone 1 is closed to that fishery for the remainder of the year, unless further allocated by season.

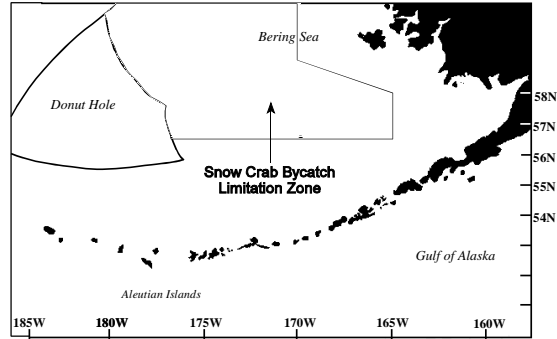
Tanner Crab: Separate Tanner (*C. bairdi*) crab PSC limits are set for Zone 1 and Zone 2. These limits may be further allocated among the pollock/mackerel/other species, Pacific cod, rock sole, turbot/sablefish/arrowtooth, rockfish, and yellowfin sole fisheries. When a fishery exceeds its PSC limit in one zone, trawling is closed for that zone for the remainder of the year.

Under Amendment 41, PSC limits for *bairdi* in Zones 1 and 2 are based on total abundance of *bairdi* crab as indicated by the NMFS trawl survey. These limits are further reduced by 50,000 as prescribed by

Amendment 41 PSC limits adopted for bairdi Tanner crab.		
<u>Zone</u>	<u>Abundance</u>	<u>PSC Limit</u>
Zone 1	0-150 million crabs	0.5% of abundance
	150-270 million crabs	750,000
	270-400 million crabs	850,000
	over 400 million crabs	1,000,000
Zone 2	0-175 million crabs	1.2% of abundance
	175-290 million crabs	2,100,000
	290-400 million crabs	2,550,000
	over 400 million crabs	3,000,000

proposed Amendment 57. Based on 2000 abundance (219 million crabs), and the Amendment 57 adjustment, the PSC limit for *C. bairdi* in 2001 will be 730,000 (750,000 minus 20,000) crabs in Zone 1 and 2,070,000 (2,100,000 minus 30,000) crabs in Zone 2.

Snow Crab: Under Amendment 40, PSC limits for snow crab (*C. opilio*) are based on total abundance of *opilio* crab as indicated by the NMFS standard trawl survey. The snow crab PSC cap is set at 0.1133% of the Bering Sea snow crab abundance index, with a minimum PSC of 4.5 million snow crab and a maximum of 13 million snow crab. This number is further reduced by 150,000 crabs as part of Amendment 57. Based on the 2000 survey estimate of 3.2 billion crabs, the 2001 snow crab PSC limit will be 4,350,000 crabs (4,500,000 minus 150,000).



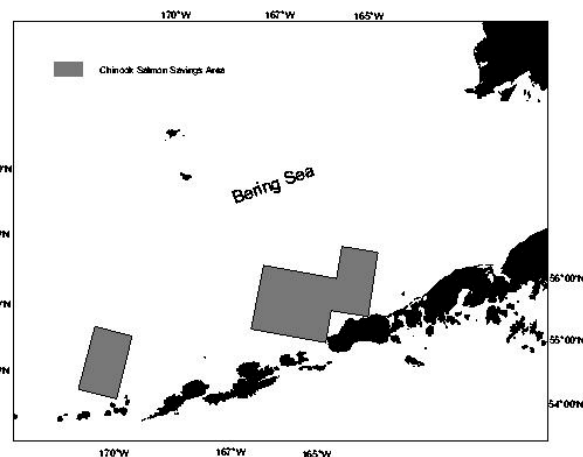
Location of the snow crab bycatch limitation zone.

Snow crab taken within the “Snow Crab Bycatch Limitation Zone” accrue towards the PSC limits established for individual trawl fisheries. Upon attainment of a snow crab PSC limit apportioned to a particular trawl target fishery, that fishery is prohibited from fishing within the snow crab zone.

Halibut: Halibut PSC is measured in metric tons of halibut mortality and allocated among trawl and hook & line gear. PSC amounts have been 3,775 mt for trawl and 900 mt for hook & line gear. As part of Amendment 57, the trawl PSC amount is reduced by 100 mt to reflect the prohibition on the use of bottom trawl gear in the pollock fishery. The annual trawl halibut PSC is allocated among the Pacific cod, yellowfin sole, rock sole, pollock/mackerel/other species, rockfish, and sablefish/turbot/arrowtooth fisheries. Both the trawl and hook and line PSC limits are seasonally allocated among fisheries. When a fishery exceeds its seasonal limit, the entire Bering Sea is closed for that fishery for the remainder of the season.

Herring: The herring PSC limit is set at 1% of stock biomass. Once the PSC limit has been obtained, one or all of the three designated Herring Savings Areas closes, depending on the time of the year.

Chinook Salmon: The chinook PSC limits were first established by Amendment 21b which closed specified areas to trawling if and when 48,000 chinook salmon were bycaught. In 1999, the Council adopted Amendment 58 to reduce the amount of chinook salmon allowed to be taken as bycatch in BSAI trawl fisheries. Specifically, the alternative adopted did the following (1) reduced the chinook salmon bycatch limit from 48,000 to 29,000 chinook salmon over a 4-year period, (2) implemented year-round accounting of chinook salmon bycatch in the pollock fishery, beginning on January 1 of each year, (3) revised the boundaries of the



Location of the chinook salmon savings areas in the BSAI, as modified by Amendment 58.

Chinook Salmon Savings Areas, and (4) set more restrictive closure dates. The bycatch limit for 2000 fisheries was set at 41,000 chinook salmon. These areas will be then re-opened to trawling on April 16th for the remainder of the year. The bycatch limit for 2001 fisheries will be set at 37,000 chinook salmon.

Chum Salmon: A chum salmon PSC reduction plan was established by Amendment 35. Under this plan, the Chum Salmon Savings Area is closed from August 1 to September 1, but this area opens September 2, unless the 42,000 cap is reached (accounting to begin August 15 in the CVOA). If the cap is reached the fishery will open October 15th.

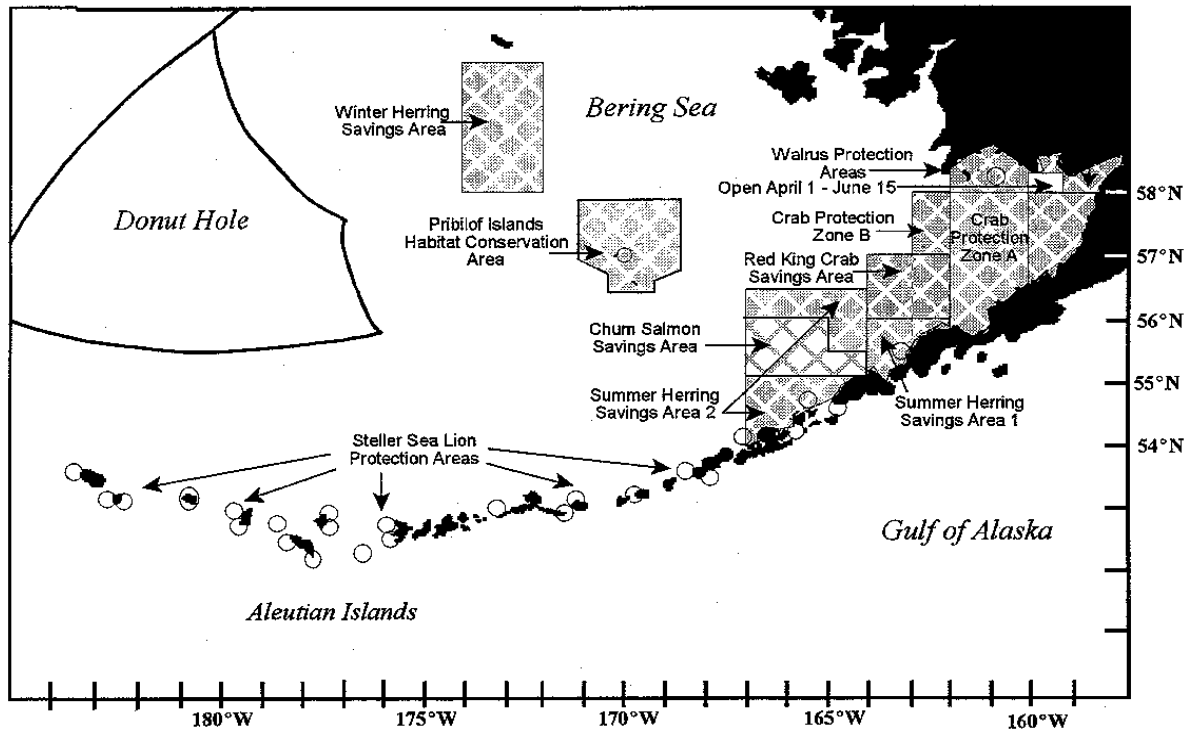
Please refer to Figure 1 for the location of Bering Sea Species Protection Areas discussed above. PSC apportionments of red king crab, Tanner crab, and halibut for the 2000 trawl fisheries are shown in Table 1. The 2000 bycatch numbers to date are listed in Tables 2-4.

PLEASE NOTE: Several regulatory changes have recently occurred or are in development, which may affect the 2001 PSC apportionments.

- The multispecies CDQ program began with the 1999 fishing year. A total of 7.5% of each PSC limit is apportioned to the CDQ program.
- The American Fisheries Act allows pollock fisheries to form cooperatives.

Figure 1

Bering Sea Marine Protected Areas



Nearshore Bristol Bay Closure Area: prohibits all trawling at all times in the EEZ within the area east of 162° W longitude with the exception of an area bounded by 159° to 160° W and 58° to 58°43' N that would remain open April 1 - June 15.

Chum Salmon Savings Area: closed to all trawling August 1-31 with provisional extension to October 15.

Chinook Salmon Savings Area (not shown): closed to all trawling when 48,000 chinooks are taken.

Bristol Bay Red King Crab Area: closed seasonally to non-pelagic trawling.

Pribilof Islands Habitat Conservation Area: closed year-round to all trawling.

Crab Protection Zones: Zone A closed to trawling year-round.
Zone B closed to trawling March 15 - June 15.

Crab Bycatch Limitation Zones (not shown): closed to specified trawl fisheries when limits are reached.

C. Opilio Bycatch Limitation Zones (not shown): closed to specified trawl fisheries when limits are reached.

Walrus Protection Areas: closed to all fishing April 1 - September 30.

Steller Sea Lion Protection Areas: closed to all trawling year-round with some extended seasonally on January 20.

Herring Savings Areas: closed to all trawling when trigger reached.
Summer Area 1 closed June 15 - July 1.
Summer Area 2 closed July 1 - August 15.
Winter Area closed September 1 - March 1.

Table 1.

**2000 BSAI Trawl Fisheries PSC
Council Recommended Apportionments and Seasonal Allowances**

Fishery Group	Halibut Mortality Cap (mt)	Herring (mt)	Red King Crab (animals) Zone1	C. bairdi Zone1	C. bairdi Zone2	C. opilio COBLZ
Yellowfin sole	26.06% 958	9.14% 169	12.99% 12,600	37.61% 312,163	64.98% 1,637,448	71.49% 3,109,815
January 20 - March 31	29.63%					
April 1 - May 20*	22.00%					
May 21 - July 3	5.45%					
July 4 - Dec 31	42.82%					
Rocksole/other flatfish	22.91% 842	1.31% 24	72.17% 70,005	40.29% 334,407	21.66% 545,832	21.62% 940,470
January 20 - March 31	57.62%					
April 1 - July 3	20.95%					
July 4 - December 31	21.31%					
Turbot/sablefish/ Arrowtooth		0.59% 11				1.02% 44,370
Rockfish	2.03% 75	0.47% 9			0.42% 10,884	1.02% 44,370
July 4 - Dec 31						
Pacific cod	42.18% 1,550	1.31% 24	12.99% 12,600	20.17% 167,411	11.83% 298,116	3.07% 133,545
Pollock/mackerel/o.species	6.82% 250	87.18% 1,616	1.85% 1,795	1.93% 16,019	1.10% 27,720	1.78% 77,430
TOTAL	3,675	1,853	97,000	830,000	2,520,000	4,350,000

- 1) Includes 7.5% CDQ allocation.
- 2) Unused PSC allowances may be rolled into the following seasonal apportionment.
- 3) 35% of the red king crab PSC for the rock sole fishery is apportioned to the 56 - 56o10' RKCSA strip.
- 4) Accounts for the reductions in halibut and crab PSCs due to ban on pollock bottom trawling
(halibut: -100 mt; RKC: -3,000; Z1 bairdi: -20,000; Z2 bairdi: -30,000; opilio: -150,000 crab)
- 5) Accounts for adjustments due to changes in biomass for herring, red king crab, Z2 bairdi, and opilio.
- 6) For herring PSC in pollock/makerel/o.species category, 1,558 mt for midwater pollock fishery.

**2000 BSAI Non-Trawl Fisheries PSC Bycatch Allowances
and fixed gear Pacific cod seasonal apportionments**

Fishery Group	Halibut Mortality (mt)	Seasonal Apportion of cod TAC (mt)
Pacific Cod	810	
Jan 1 - April 30	495	65,000 first tr.
May 1 - August 31	0	0 second tr.
Sept. 1 - Dec. 31	315	26,048 third tr.
Other Non-Trawl*	90	
May 1 - December 31	90	
Groundfish Pot	Exempt	
TOTAL	900 mt	91,048

Note: unused halibut PSC or P. cod TAC from first trimester will be rolled into the third trimester.

Any halibut PSC removed from the CDQ fisheries will be replaced from PSC apportioned from the third trimester.

* Includes hook & line fisheries for rockfish and Greenland turbot.

Sablefish hook & line fisheries will be exempted from the halibut mortality cap.

Jig gear will also be exempted from the halibut mortality cap.

Table 2.

2000 BERING SEA/ALEUTIAN ISLANDS FISHERIES
PROHIBITED SPECIES BYCATCH
Week Ending: 11/04/00

TRAWL HERRING, BSAI

Fishery group	Herring (mt)	Cap (mt)	%
Midwater pollock	479	1,616	30%
Pacific cod	1	24	4%
Yellowfin sole	32	169	19%
Rockfish	0	9	0%
Other	3	38	8%
Rock sole/Other flatfish	2	24	8%
GTRB/ARTH/SABL	0	11	2%
Total:	517	1,891	27%

TRAWL SALMON, BSAI

Fishery group	Chinook (#'s)	Other (#'s)	Total (#'s)
Midwater pollock	5,233	56,511	61,744
Bottom pollock	0	0	0
Pacific cod	2,685	128	2,813
Yellowfin sole	73	171	244
Rock sole/Other flatfish	289	58	347
Rockfish	8	0	8
Other	257	374	631
Seasonal Total:	8,544	57,242	65,786

TRAWL BAIRDI TANNER CRAB

Fishery group	ZONE 1			ZONE 2		
	Crabs (#'s)	Cap (#'s)	%	Crabs (#'s)	Cap (#'s)	%
Rock sole/Other flatfish	192,853	309,326	62%	160,185	504,894	32%
Pacific cod	55,391	154,856	36%	34,592	275,758	13%
Yellowfin sole	75,304	288,750	26%	398,592	1,514,683	26%
Pollock/AMCK/Other species	69	14,818	0%	2,421	25,641	9%
Rockfish	0	0	0%	52	10,024	1%
GTRB/ARTH/SABL	0	0	0%	13,913	0	0%
Total:	323,617	767,750	42%	609,755	2,331,000	26%

TRAWL C. OPILIO TANNER CRAB in the COBLZ AREA

Fishery group	Crabs (#'s)	Cap (#'s)	%
Rock sole/Other flatfish	114,602	869,934	13%
Pacific cod	14,077	123,529	11%
Yellowfin sole	1,501,758	2,876,579	52%
Pollock/AMCK/Other species	11,227	71,622	16%
Rockfish	0	41,043	0%
GTRB/ARTH/SABL	0	41,043	0%
Total:	1,641,664	4,023,750	41%

TRAWL RED KING CRAB

ZONE 1

Fishery group	Crabs (#'s)	Cap (#'s)	%
Rock sole/Other flatfish	53,389	64,755	82%
Pacific cod	4,379	11,656	38%
Yellowfin sole	12,202	11,655	105%
Pollock/AMCK/Other species	0	1,660	0%
Total:	69,970	89,726	78%

Table 3.

2000 BERING SEA / ALEUTIAN ISLANDS FISHERIES
 FIXED GEAR HALIBUT BYCATCH MORTALITY (METRIC TONS)

WED	PACIFIC COD HOOK & LINE		OTHER SPECIES HOOK & LINE, JIG		ALL GROUND FISH POT GEAR	
	WEEKLY	TOTAL	WEEKLY	TOTAL	WEEKLY	TOTAL
01/01/00	1	1	0	0	0	0
01/08/00	12	13	0	0	0	0
01/15/00	20	33	0	0	0	0
01/22/00	12	45	0	0	0	0
01/29/00	12	57	0	0	1	1
02/05/00	16	73	0	0	1	2
02/12/00	16	89	0	0	0	2
02/19/00	19	108	0	0	0	2
02/26/00	21	129	0	0	0	2
03/04/00	16	145	0	0	0	2
03/11/00	13	158	0	0	0	3
03/18/00	1	159	0	0	0	3
03/25/00	0	159	2	2	0	3
04/01/00	0	159	0	2	0	3
04/08/00	0	159	0	2	0	3
04/15/00	0	159	0	2	0	3
04/22/00	0	159	0	2	0	3
04/29/00	0	159	1	3	0	3
05/06/00	0	159	45	48	0	3
05/13/00	0	159	17	66	0	3
05/20/00	0	159	30	96	0	3
05/27/00	0	159	13	109	0	3
06/03/00	0	159	2	111	0	3
06/10/00	0	159	0	111	0	3
06/17/00	0	159	0	111	0	3
06/24/00	0	159	0	111	0	3
07/01/00	0	159	0	111	0	3
07/08/00	0	159	4	115	0	3
07/15/00	0	159	3	118	0	3
07/22/00	1	160	0	118	0	3
07/29/00	1	162	0	118	0	3
08/05/00	0	162	2	120	0	3
08/12/00	0	162	2	122	0	3
08/19/00	0	162	0	122	0	3
08/26/00	0	162	0	122	0	3
09/02/00	13	175	1	123	0	3
09/09/00	50	224	0	123	0	3
09/16/00	55	279	0	123	0	3
09/23/00	38	317	0	123	0	3
09/30/00	33	350	0	123	0	3
10/07/00	42	392	0	123	0	3
10/14/00	37	428	0	123	0	3
10/21/00	28	456	0	123	0	3
10/28/00	28	484	0	123	0	3
11/04/00	26	510	0	123	0	3

PCOD SEASONAL CAP: 673
% OF SEASONAL CAP: 76%

OTHER SEASONAL CAP: 159
% OF SEASONAL CAP: 77%

Pot gear is exempt
from bycatch allowances

REMAINING PCOD: 163

REMAINING OTHER: 36

2000 BSAI NON-TRAWL PACIFIC COD FISHERY HALIBUT BYCATCH ALLOWANCES

(Jan 01 - Apr 30)	457 MT
(May 01 - Aug 31)	0 MT
(Sep 01 - Dec 31)	216 MT

Annual Total	673 MT

Table 4.

2000 BERING SEA / ALEUTIAN ISLANDS FISHERIES
 11/09/00 TRAWL HALIBUT BYCATCH MORTALITY (METRIC TONS)

WED	PACIFIC COD	YELLOWFIN SOLE	ROCK SOLE/ FLATHEAD SOLE/ OTHER FLATFISH	PLCK/AMCK/ OTHER	ARROWTOOTH/ ROCKFISH	SABLEFISH/ TURBOT
01/22/00	36	0	6	4	0	0
01/29/00	27	0	130	6	0	0
02/05/00	54	0	71	3	0	0
02/12/00	24	0	61	3	0	0
02/19/00	70	0	36	3	0	0
02/26/00	53	0	65	3	0	0
03/04/00	27	0	38	4	0	0
03/11/00	37	13	0	2	0	0
03/18/00	54	39	0	9	0	0
03/25/00	52	34	0	2	0	2
04/01/00	71	22	10	2	0	0
04/08/00	96	1	41	0	0	14
04/15/00	90	6	29	0	0	6
04/22/00	85	5	51	2	0	9
04/29/00	82	31	36	5	0	7
05/06/00	43	26	9	3	0	0
05/13/00	14	10	0	0	0	8
05/20/00	6	8	0	0	0	0
05/27/00	1	23	0	2	0	0
06/03/00	4	11	0	0	0	1
06/10/00	2	9	0	0	0	2
06/17/00	0	17	0	0	0	2
06/24/00	0	26	0	0	2	0
07/01/00	1	11	0	0	0	0
07/08/00	0	0	18	0	3	2
07/15/00	0	0	19	0	6	0
07/22/00	0	0	12	1	0	3
07/29/00	1	4	33	1	0	1
08/05/00	0	2	25	3	0	6
08/12/00	0	8	29	2	0	8
08/19/00	0	12	34	3	0	9
08/26/00	0	19	41	4	1	0
09/02/00	2	38	10	54	0	0
09/09/00	0	39	1	89	0	0
09/16/00	0	64	3	44	0	1
09/23/00	0	53	3	73	0	0
09/30/00	0	70	1	6	0	0
10/07/00	0	95	0	6	0	0
10/14/00	0	29	0	3	0	0
10/21/00	0	69	0	4	0	0
10/28/00	0	78	0	3	0	0
11/04/00	0	49	0	1	0	0
	931	919	813	350	12	81

SEASONAL						
CAP:	1,434	886	779	232	69	0
% OF CAP:	65%	104%	104%	151%	17%	0%
REMAINING:	503	-33	-34	-118	57	-81
ANNUAL CAP:	1,434	886	779	232	69	0
% OF CAP:	65%	104%	104%	151%	17%	0%

TOTAL HALIBUT MORTALITY : 3,107
TOTAL FINAL HALIBUT CAP : 3,400